

fault. The water of an Atlantic fog does not, as a rule, come from the surface on which the fog lies, but from far to the south. It is the cold surface which causes the fog; the temperature of the surface is below the dew-point of the air above it, and dew would therefore be formed on the oil. Even if the theory were correct and we obtained a patch of oil, a clear space, and a ship, we should still have to consider what would be their relative positions at the end of an hour or twelve hours, in view of their relative drifts. An identical method was suggested some years ago for application to the river Rhone, at its junction with the Saone, where warm and cold water join. No news has arrived as to the success of the proposal."

The modern problem of clearing fog from aerodromes has been the subject of several suggestions. The chief of these are local heating by means of coal fires, mechanical driving away of foggy air by propellers capable of giving a speed of 100 kilometers per hour to the propelled stream, and electrical methods. Again it is a question of scale. Both within a laboratory and on the larger scale of furnace flues a brush discharge of electricity will clear away dust, smoke and cloud like magic. Sir Oliver Lodge's experiments in clearing Liverpool from fog were not decisive, and in any case it is not very desirable to have an installation for brush discharge, which comes very near to sparking, in the neighborhood of an aerodrome.

"The most telling example of malevolence of the weather toward the allied forces that I can recall in the course of the war is the development of a rainy cyclonic depression over the western front and southern part of the North Sea during the end of July and the beginning of August, 1917. It began to form on July 28, and reached its climax on August 3, when a well-marked depression, 11 millimeters deep, was exhibited on the map, extending over a nearly circular area, 1,400 kilometers in diameter, and had filled up on August 6. It apparently originated and filled up again in the locality. I reckon that the creation of the depression, which was a very small affair,

and on the map looked like gerrymandering, is equivalent to the removal from within the cylinder of 1,400 kilometers diameter of seventy thousand million tons of air. It took six days to accomplish this deportation, and three days to fill the space up again. If the enemy accomplished this feat by artificial means, they must have used some other process than firing shells vertically upward: the question gives me the same sort of tired feeling as the 200-mile jetty, with some other sensations added.

"The most direct means of accomplishing such a deportation of air would be by an underground channel to carry the air from the central region to beyond the boundary of the depression. Let us suppose a channel, 12 feet in diameter, leading from Ostend to Berlin and operated there by a 16-foot propeller giving a full bore stream of 100 kilometers an hour (friction being neglected). The deportation would go on at the rate of 1,200 tons per hour, or 28,800 tons per day. Working without intermission, it would take 7,000 years for the propeller to complete the deportation; and as it had to be done in six days, 400,000 such channels would have to be operated concurrently to get the work done in time.

"What it comes to, then, is that all the suggestions for the human control of weather oppress one, not by any mistaken conception of physical processes, but by the 'scale and effect.' Within our knowledge we are lords of every single specimen of the atmosphere which we can bottle up and imprison in our laboratories, our furnace flues and our greenhouses; but in the open air the ordinary inexorable laws which control the behavior of the atmosphere when we are awake and when we are asleep, have such enormous masses of energy in the form of warmth and water vapor in reserve that our own little reserves are not equal to making any serious impression on the course of nature." The course of the weather may, however, be affected by the explosion of a great volcano, and it would be interesting to consider "how far our reserves of available energy compare with the destruction of Pompeii, the disappearance of the island of Krakatoa, or the eruptions of Mont Pelée and La Souffrière."

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